The origins of *-urC-* for expected *-orC-* in Latin

Nicholas Zair, Cambridge University

Abstract

A number of Latin words show *-urC-* where *-orC-* would be etymologically expected. In this article, a collection is made of the reliable examples, and previous explanations are assessed. No regular sound change that explains all the good examples exists, and it is concluded that an origin in dialectal Latin, although superficially supported by the apparent parallel of cases of *-irC-* for *-erC-*, is difficult to substantiate. Instead, there seem to be two sources: firstly, a regular Latin sound change **u̯orC-* > *urC-*, as in **u̯or-u̯o-* > *uruum* 'plough'; and secondly, borrowing from Umbrian, where, it is argued, *-ur-* is the regular reflex of **-r̥-* (e.g. the preverb *pur-* < **pr̥-*).

1. Introduction[1]

The apparently sporadic appearance of *-urC-* in Latin for expected *-orC-* (from **-orC-* or **-r̥C-*) in cases like *currō* 'run' for expected *[x]corrō* < **kors-e/o-* or **kr̥s-e/o-* has not been satisfactorily explained.[2] Most handbooks do not devote much space to the phenomenon, often attributing these cases to borrowing from another dialect of Latin or one of the Sabellic languages, although some treat it as a sporadic sound change. Exactly which of these scenarios is being envisaged is not always altogether clear, partly due to the problem of the slipperiness of the word 'dialect', which could refer to a dialect of Latin, or to one of the

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[2] In this article, C will be used to represent any consonant, K any velar, R any sonorant, N any nasal, L any liquid, H any laryngeal, and V any vowel.

Sabellic 'dialects'.[3] Weiss (2009: 95, 140) treats some of the forms as possibly being the result of a sound change, and some as (Latin) dialectal, while Sihler (1995: 43) states: "[o]bscure, perhaps dialectal, is the patternless change of *o* > *u* before *r* + cons[onant] in some words... This has the nature of a regular sound change in Sab[ellic], but in L[atin] for the most part *or* + cons. remains unaffected, and this is assumed to be the proper development for urban Latin". Similar statements include "it might have been dialectal, since it is regular in Sabellic" (de Vaan 2008: 235), and "[e]ine Erklärung sucht man ... teils in dialektischer (umbr.) Entwicklung von *or* zu *ur*" (Leumann 1977: 57). As these remarks show, a connection is often drawn with a similar development in one or more of the Sabellic languages. The assertion that **-o-* > *-u-* before *-rC-* is regular in Sabellic is unhelpful, since, as we will see, whatever the precise definition of the rule, it is probably restricted to Umbrian (as noted by Leumann), and is environmentally probably more restricted than this formulation implies.

Explaining forms which do not seem regular according to known sound laws by borrowing is, of course, a standard approach. However, it can be difficult to escape circularity, or at least Occam's razor (an otherwise unknown dialect or language is posited on the basis solely of divergent forms in another language). The cases where borrowing as an explanation is most plausible are those where another language (/dialect) is known to have been in existence and in contact with the borrowing language, and can be shown to have undergone the same sound change as is visible in the words which are suspected to be borrowed. An excellent example is the word *lupus* 'wolf'; this does not follow the regular sound laws of Latin (which would be expected to produce ^{x}*luqus* or ^{x}*lucus*), but does follow the standard development of **-k^{w}-* to *-p-* in the Sabellic languages, which we know from other sources of evidence to have been in contact with Latin. Thus, even though the counterpart of Latin *lupus* is not actually attested in any of the Sabellic languages, it is clear that it must have originated from one of those. The case for borrowing, either from a Sabellic language or a non-urban dialect of Latin as the origin of (at least some of) the Latin words containing *-ur-*, is not so well supported, but there is enough circumstantial evidence to make it a plausible

[3] In order to make my own argument clear, in this article I will distinguish between 'urban' Latin (spoken in Rome), 'non-urban' Latin (spoken, at the time that the words found here are liable to have been borrowed, primarily in Latium and surrounding areas), and 'standard' Latin. I take 'standard' Latin, which was being defined in the course of the last two or three centuries BC (Clackson 2011), to be based on urban Latin, but to be able to include some dialectal features. This picture is no doubt far too simplistic, but it will suffice for the present purpose.

working hypothesis. Firstly, as we will see, it has not proved possible to identify a phonetic environment in which all instances of *-ur-* can be said to have developed in standard Latin as the result of a regular and exceptionless sound change (although I will suggest below that some instances are the result of a regular sound change in Latin). Secondly, we have both internal and external evidence for the existence of contact with, and borrowings from, Sabellic languages; and also some evidence for the existence of dialectal variation within Latin during the course of the first millennium BC (Adams 2007: 37-187). Lastly, as we will see, there is evidence which might support both an origin in non-urban Latin, and an origin in Umbrian.[4]

The purpose of this article is to examine in greater detail the various possible explanations for the phenomenon of *-urC-* for expected *-orC-* in Latin, ranging from a sporadic sound change to borrowing from a non-urban dialect of Latin or from Umbrian. I will then assess which is the more likely source of the borrowing, by comparing the phonetic environment in which the change occurred in the Latin words with the environments in which it might have occurred in dialectal Latin and Umbrian. My preferred explanation will be borrowing from Umbrian: if correct this will have important implications for the development of the vocalic liquids in the Sabellic languages.[5] In section 2 I will collect and

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[4] In fact, it is quite possibly another Sabellic language from which the words were taken, one which was perhaps spoken nearer Latium than our historically attested Umbrian: our evidence is very meagre for many languages, especially prior to about 400 BC. The key point, as we shall see, is that the language (or languages) from which the words were taken, shared certain sound changes discussed below with Umbrian (and perhaps not, for example, with Oscan). Umbrian is, however, the only language which definitely shows *-ur-* for expected *-or-*, and I will use 'Umbrian' as a shorthand to refer to all the possible source languages from which borrowing into Latin could have occurred. On the difficulties involved in interpreting the relationships between the various Sabellic languages, especially at an early stage, see Clackson (2015).

[5] A reviewer objects to the idea that the words examined here could have been borrowed from Umbrian, observing "[w]hy should an early Roman have given up his/her own words for 'run' or 'bear' in favour of those of a neighbouring language? After all, these are fairly basic concepts for which there must have been native words as well, before the 'borrowing' happened". But of course we know that the Romans did give up their own word for animals rather often: 'wolf' (as just discussed); *bōs* 'ox' < **g*^{w}*ou̯-s*, with Sabellic *-b-* < **g*^{w}*-* instead of Latin *-u-*, and Umbrian (Marrucinian, South Picene ...) or perhaps non-urban Latin (Adams 2007: 64-6) monophthongisation of **-ou̯-* to *-ō-*; *būfō* 'toad' < **g*^{w}*ōb*^{h}*ō*, with Sabellic *-b-* < **g*^{w}*-*, *-ū-* for **-ō-* and *-f-* for **-b*^{h}*-* (Weiss 2009: 474-5). So the idea that words in this semantic sphere such as *ursus* 'bear', *sturnus* 'starling' and *turdus* 'thrush' are borrowings is in fact highly plausible. With regard to the more general point, it is clear that borrowing does not only take place when a recipient language lacks a term for a particular concept, but instead depends on a number of sociolinguistic and structural variables, including a critical mass of bilingual speakers

discuss the relevant forms; in section 3 I will show that explanation purely in terms of a Latin sound change is not viable; in section 4 I will discuss the possibility of a dialectal (or sporadic) Latin raising rule in the environment *-*orC*-; in section 5 I will examine the phonetic environments in which the development takes place; in section 6 I will assess whether Umbrian could be a source of the forms with -*urC*-; and in section 7 I will provide conclusions.

2. The evidence

At the start, it is important to be clear which forms are to be included in the evidence for -*ur*- in Latin for expected -*or*-. Consequently, I list here, in alphabetical order, all the words which have been suggested as representing this phenomenon, and provide etymological discussion of them.

curro 'run', cf. Old Irish *carr* 'cart, wagon' <**kr̥s-o-*, Greek ἐπίκουρος 'ally; assisting' < **kors-o-* (LIV 355; de Vaan 2008: 157-8). There seem to be no other verbal formations attested to this root outside Latin. Under the standard view (as outlined in LIV 18-19), *e/o*-presents are expected to have either full or zero grade in the root, which would result in a reconstruction **kr̥s-e/o-* for *currō*. But, if we accept Jasanoff's (2003: 64-90) model of an athematic *h₂e*-conjugation, which had *o/e*-ablaut in Proto-Indo-European, and was thematised in most of the daughter languages, **kors-e/o-* would also be possible, especially because the semantics of these verbs often involves motion or "vigorous or violent activity" (Jasanoff 2003: 76). Given the lack of evidence for *o*-grades in other languages, a zero grade is more likely, but an *o*-grade cannot be entirely ruled out.

curtus 'mutilated, damaged, broken' is an original verbal adjective derived either from **kʷr̥-to-* (cf. Hittite *ku-e-er-zi* 'cut'), or from**kr̥-to-* (cf. Greek κείρω 'cut short, sheer, clip, tear', καρτός 'shorn smooth, chopped, sliced'); de Vaan (2008: 158).

(which probably existed in ancient Italy). Borrowing of nouns is probably more common than of verbs, but even so lexical borrowing of non-function words such as verbs is considered to result from casual contact, and is probably particularly liable to take place in languages whose verbal systems are similar, such as Latin and Umbrian (Thomason & Kaufman 1988: 72-8; Myers-Scotton 2002: 233-42; Matras 2009: 166-92; Hickey 2013: 176-9).

curuus 'curved, bent' could come from **kr̥-u̯o-*, as implied by IEW (935) and Walde & Hofmann (1938-1954: 1.317). But the entries in these works mix up several roots containing the shape **Ker-*, and there is no very close semantic connection of them to *curuus*. A connection to Greek κυρτός 'bulging, swelling' < **kur-to-*, Middle Welsh *cwrr* 'corner' < **kur-so-* seems more plausible, although **kur-C-* is not possible according to Proto-Indo-European syllabification rules (we would expect **ku̯r̥-C-*).

furca 'fork' may come from **ĝʰorkeh₂* or **ĝʰr̥keh₂*; the resulting **hurkā* could then give *furca* by the sound change of **h- > f-* before **-u-* (cf. *fundō* 'pour' < **ĝʰu-n-d-*). But such an etymology does not have much comparative support. The most likely connection is with Lithuanian *žerĕgti* 'spread the legs', *žirklės* 'scissors' < **ĝʰerg-* (Walde & Hofmann 1938-1954: 1.569-70), which, however, shows a different velar at the end of the root.

furnus 'oven' is related to Vedic *ghr̥ṇám* 'heat, glow', Church Slavic *grъnъ* 'cauldron' and probably goes back to **gʷʰr̥-no-* (NIL 196-201). A preform **gʷʰor-no-* is also possible, but is not certainly attested in other languages (Old Irish *gorn* 'fire' can come from **gʷʰr̥-no-* as well as **gʷʰor-no-*). It has an alternative form *fornus*, which is attested in manuscripts of Varro's *Res rustica* 1.15, and in grammarians including Nonius p.531M.23 (and is also conjectured at Plautus *Epidicus* 115). If the *-urC-* forms are borrowed from non-urban Latin or another language, *fornus* may represent the urban Latin form of the word. The same explanation could apply to *fornāx* 'furnace, oven, kiln',[6] which has a by-form *furnax*, attested in inscriptions from the 2nd century AD and in manuscripts of several authors, including Lucilius and Festus. Alternatively, however, the standard forms *furnus* and *fornāx* could simply have influenced each other's vocalism. The presumably etymologically related *fornix* 'vault' is found as *furnix* only in late glosses.[7]

[6] Probably derived from an old *ā*-stem **fornā* < **gʷʰor-neh₂* or **gʷʰr̥-neh₂*. This could then have formed an adjective *fornāx* meaning 'furnace-like', subsequently substantivised; or *fornāx* could be a direct nominal formation from **gʷʰor-neh₂* by the addition of the individualising suffix **-s* to give **gʷʰorneh₂-s*, followed by laryngeal 'hardening', as argued for by Olsen (2010). The adjectival formation is common (cf. *linguāx* 'talkative' beside *lingua* 'tongue'); the only other nominal formation with a clear derivational connection in Latin itself is *līmāx* 'slug, snail' beside *līmus* 'mud, slime'.

[7] A completely different etymology is hinted at by NIL (132).

furfur 'bran' is derived by Walde & Hofmann (1938-1954: 1.570) as a reduplicated formation from a root **g^her-* 'grind'. This is described by de Vaan (2008: 252) as "phonetically impossible", but this is not true if *-ur-* came into existence in this word prior to the development of **h- > f-* before *-u-*. So either **g^hor-g^hor-* or **$g^h_{\text{̥}}$r-$g^h_{\text{̥}}$r-* would be a possible reconstruction. But the root is not well attested (IEW 439). An alternative connection would be with Latin *far* 'grain, spelt'; although this looks like a root noun **b^hars*, it must originally have been an *s*-stem, as shown by Old English *bere* 'barley' < **b^har-es-*. The root is consequently **b^har-*, as found in the derived Celtic forms Old Irish *bairgen* 'bread', Middle Welsh *bara* 'bread'. If roots with **-a-* underwent ablaut, *furfur* could then come from **b^hor-b^hor-* or **$b^h_{\text{̥}}$r-$b^h_{\text{̥}}$r*. The etymology is not really strong enough for us to be sure of the origin of this word.

furtum 'theft' is a nominalisation of the original verbal adjective **$b^h_{\text{̥}}$r-to-* from the verb *ferō* 'bring, bear' < **b^her-*, cf. Vedic *bhr̥tá-* 'brought' (Meier-Brügger 1989). The long vowel in the alternative form *fūrtum* is due to contamination with *fūr* 'thief' < **b^hōr*.

gurdus 'blockhead, dolt' comes from **$g^w_{\text{̥}}$rd-o-* or **g^word-o-* if it is to be compared with Greek βραδύς 'slow', Lithuanian *gurdùs* 'slow', Old Church Slavic *grъdъ* 'proud, haughty' (de Vaan 2008: 275). Initial **k^wu-* seems to have given *u-* in Latin (cf. *ubi* < **k^wud^hi*), so it is possible that **g^wu-* gave *gu-* instead of expected *^{x}uu-* (cf. **$g^w_{\text{̥}}$m-i̯e/o-* > Lat. *ueniō*), but there is no other evidence for such a change, which would have to be after the development to *-ur-*. Quintilian (*Inst.* 1.5.57) also says that this word comes from Hispania, so it is possible that it may not be Latin at all.

gurgēs 'whirlpool' is supposedly derived from **$g^w_{\text{̥}}$r(h_3)-$g^w_{\text{̥}}$r(h_3)-et-* (cf. *uorō* 'devour'; Meiser 1998: 63; de Vaan 2008: 275-6). However, this etymology would require the loss of laryngeal in composition in the environment *C$_{\text{̥}}$RHC-* (for which there is no good evidence in Latin; Schrijver 1991: 328-30. The loss of the laryngeal in the second syllable is acceptable by the 'νεογνός rule'; cf. *priuignus* < **-gn̥h_1-o-*). It would also require loss of the second *-r-* by dissimilation (normally the first **-r-* is lost, cf. *taberna* 'hut' < **trabernā*), and presumably a rule **-g^w-* > *-g-* before *-r-*, for which there is no other evidence (note that **-g^w-* certainly becomes *-u-* after *-r-*, cf. *toruus* 'grim' < **torg^{w}o-*). Altogether, this etymology is far too

contingent on a set of unproven assumptions for it to be taken to be reliable (especially since onomatopoeia is also a particularly likely influence on a word of this meaning).

lurcō 'glutton' is of completely unclear etymology (de Vaan 2008: 353-4).

murcus 'a coward, who, to escape military service, cuts off his thumb'; in the adjectival meaning 'short, cut off' it is attested only in glosses. It was, however, also used as a Roman cognomen. It is generally taken to be the base form from which was derived *murcidus* 'slothful' (Ernout & Meillet 1985: 422), although it is also possible that *murcus* was back-formed from *murcidus* (Leumann 1977: 329). But the relationship between the words and their possible etymologies is complex. It is possible that *marceō* is connected to Vedic *marcáyati* 'injure, harm', Hittite *mar-ki-ya-zi* 'disapprove of, object to', Lithuanian *miřkti* 'become weak, soaked' (de Vaan 2008: 264; Kloekhorst 2008: 559). If so, the only plausible explanation for Latin *marceō* seems to be as an original stative **mr̥k-eh*$_1$-, with development to **morkē-* and then **markē-* by unrounding of **-o-* in the sequence **m_rK-* (Vine 2011: 280-83). If this were the case, *murcus* and *murcidus* would have to come from **mr̥k-o-* or **mork-o-* and the development to *-ur-* could only be explained if they were borrowings from a non-Latin language in which the unrounding did not take place. But there are several difficulties with such an etymology of *murcus* and *murcidus*. In the first place, Vedic *marcáyati* may instead come from **melk*^{w}- (cf. Greek βλάπτω 'disable, hinder'; EWAIA 323-4; LIV 434-5). If so, none of the remaining cognates fit particularly well with the meaning of *murcus*, so we should perhaps dissociate *murcus* - and *murcidus*, if derived from *murcus* - from *marceō* and its cognates altogether. However, *murcidus* does seem to go better semantically with *marceō* 'wither, droop' than *murcus* does. I would be inclined to wonder if, in the single non-gloss in which *murcus* is attested (Ammianus Marcellinus 15.12.3), the emphasis is on the laziness of the non-combatants rather than their lost thumbs; in this case the glosses would be due to a misunderstanding of this or similar passages. A further difficulty is the fact that the Romance descendants of *murcidus* show that the vowel in the first syllable was in fact long (Meyer-Lübke 2009: 473-4), which is presumably secondary and may be due to the rather obscure lengthening of vowels before *-rC-* that took place in some

Latin words (Sihler 1995: 76).[8] Given the various problems, I do not think we can be completely sure that *murcus* and *murcidus* come from **mr̥k-o-* or **mork-o-*.

murmur 'murmur; humming; roaring; crashing' could come from something like **mr̥-mr̥-* or **mor-mor-*. Various similar formations are attested in other Indo-European languages (e.g. Greek μορμύρω 'roar and boil (of water)'; de Vaan 2008: 395-6). But the cases of *-u-* in the word are probably connected with onomatopoeia rather than a sound change.

purpura 'purple-fish, purple' is generally taken to be a loan word from Greek πορφύρα 'purple-fish, purple', and according to Ernout & Meillet (1985: 546), the *-u-* in the first syllable is due to assimilation to Latin reduplicated formations such as *furfur*, in which the same vowel appears in both syllables. Alternatively, the strongly labial environment may have had an effect on how the Greek -o- was represented in Latin.[9] Biville (1990-1995: 1.152, 2.499) suggests that *purpura* might be a borrowing from the same language, spoken in the Eastern Mediterranean, from which it was borrowed into Greek. In this case, since we do not know anything about the vowel system of the source language, the divergent first vowel in Greek and Latin might be due to differences in fitting the borrowed word into the Greek and Latin vowel systems rather than due to the same phenomenon which produced the other *-urC-* forms.

scurra 'dandy, jester' has been derived from **skr̥-seh₂* or **skor-seh₂* (cf. Old High German *scerōn* 'be willful', *scern* 'jest, joke'; IEW 935), but there is not much comparative support for the root (de Vaan 2008: 548). Willi (2012: 267-9) derives it from **skuh₁-reh₂*, to the same root as he identifies as the origin of *sciō* 'I know' (< **skuh₁-i̯e/o-* by the '*pius*-Gesetz'). This is semantically attractive, since a *scurra* is essentially a 'know-it-all', but it requires the '*littera*-rule', whereby a sequence of a long vowel followed by a consonant becomes a short vowel

[8] Ernout & Meillet (loc. cit.) explain the apparent long **-ū-* in the Romance forms descended from *murcidus* as due to raising before **-rC-*. But, as shown below, this apparent raising probably only affected the sequence *-erC-*. Furthermore, if *mūrcidus* ultimately reflects **mork-* or **mr̥k-*, we would then have to deal with two cycles of raising, of which the second has affected no other examples of the sequence *-urC-*.

[9] Even greater confusion seems to reign in *murmillō*, a type of gladiator, which may be derived from Greek μορμύλος 'a sea fish', and which is spelt also *mirmillō* and *myrmillō* (Biville 1990-1995: 2.67). Note the very similar phonetic context to πορφύρα: [LAB]oL[LAB]υL. On *Murgantia* and *urtīca* 'nettle', which are probably not borrowings from Greek, see Biville (1990-1995: 2.67 and 1.225 respectively).

followed by two consonants, and Sen (2015: 42-78) has shown that this rule is restricted in its application in Latin to sequences of high vowel followed by a voiceless plosive, or **-ā-* followed by a sonorant. Since *scurra* does not fit either of these environments, Willi's etymology is less plausible. Altogether, the origin of *scurra* remains uncertain.

sturnus 'starling' is a thematic derivation of the *n*-stem **h₂stor-ōn*, **h₂st̥r-n-os* seen in Old High German *staro*, Icelandic *starri* 'starling' (Kroonen 2014). Also related is perhaps Greek ἀστραλός 'starling' (a Hesychius gloss). It may go back to either **h₂stor-n-o-* or **h₂st̥r-n-o-* (de Vaan 2008: 593).

turba 'disorder, crowd' could go back to something like **tu̯or-beh₂* or **tu̯r̥-beh₂*, with the root found in Vedic *tvárate* 'hurry', although there is no other evidence for a change **tu̯- > t-* (and it may instead give *p-*; Ernout & Meillet 1985: 483; Weiss 2009: 161). This preform, however, would not give Greek τύρβη 'noise, confusion',[10] which cannot come directly from **tu̯or-* or **tu̯r̥-*, and as observed by de Vaan (2008: 634), **-beh₂* is not a known suffix. The Greek word may be a borrowing from another language, with the Latin either a borrowing from Greek or from the same third language.

surdus 'deaf' is sometimes derived from **su̯r̥-do-* or **su̯or-do-* and compared with Vedic *svárati* 'sound, roar'. But there are obvious problems with the semantics, and the etymology is uncertain (de Vaan 2008: 602).

turdus 'thrush' comes from **tr̥sdʰo-*; the zero grade is guaranteed by Middle Irish *truid* 'starling', Lithuanian *strãzdas* 'thrush', which show that the full grade is **strosdʰ-*, not **storsdʰ-* (de Vaan 2008: 634-5).

turma 'troop' could go back to something like **tu̯or-meh₂* or **tu̯r̥-meh₂*, with the root found in Vedic *tvárate* 'hurry' (if **tu̯-* did not give Latin *p-*; see *turba* above), but it looks very

[10] Although it would give the poorly-attested variant σύρβη by the rule **Cu̯oR- > *Cu̯uR-* identified by Vine (1999a: 569-79).

similar to Old English *ðrymm* 'troop, crowd', which may go back to * *trum-*. Such a form may have given Latin *turma* by metathesis.[11]

turpis 'ugly, unsightly, unseemly, foul, filthy'. The etymology is not wholly agreed upon. Thus, Ernout & Meillet (1985: 708) describe it as "[é]tymologie inconnue", while Walde & Hofmann (1938-1954: 2.719) compare it to Sanskrit *trapate* 'is ashamed', Greek τρέπω 'turn (something) towards'. De Vaan (2008: 635) objects that "[t]his is too constructed a meaning to be credible: one would expect a different suffix to express the deontic meaning here implied ... 'turning' ... is not 'turning away', which is not 'making s[ome]o[ne] turn away from s[ome]th[ing]', which is not necessarily 'disgusting'". But the transitive semantics of Greek τρέπω combined with the semantic broadening in the Sanskrit middle 'turning (myself)' → 'turning myself (away in shame)' make a reconstructed verbal adjective * *tr̥p-i-* 'turning (someone or -thing)' →'turning someone (away in disgust)' rather plausible.[12] Since the Greek and Sanskrit forms show that the full grade is * *trep-*, *turpis* must reflect a zero grade.

urbs 'city' is very problematic etymologically. However, all suggested explanations require the development of * *-r̥-* or * *-or-* to *-ur-* being discussed. The best etymology seems to be that of Driessen (2001), who derives *urbs* from * *u̯r̥b*^{h}*(i)-* or * *u̯orb*^{h}*(i)-*, comparing Umbrian *uerfale* 'area for taking auspices', Hittite *warpa dāi-* 'encircle, enclose', Tocharian A *warp* 'enclosure (?)'. However, we should note that there are several alternative etymologies of *uerfale* (Rix 2009). The other etymologies, also discussed by Driessen, include* *g*^{h}*r̥d*^{h}*(i)-* or * *g*^{h}*ord*^{h}*(i)-* (cf. Gothic *gards* 'court, house', Vedic *gr̥há-* 'house'), * *h*$_{3}$*r̥b*^{h}*(i)-* or * *h*$_{3}$*erb*^{h}*(i)-* (cf. Latin *orbis* 'circle'), * *k*^{w}*orb*^{h}*(i)-* or * *k*^{w}*r̥b*^{h}*(i)-* (cf. Old Norse *hwarf* 'enclosed place') or * *b*^{h}*r̥ǵ*^{h}*-* (cf. Old Irish *brí* 'hill'; originally due to Cowgill *apud* Katz 1998: 203-6, Katz 2006).

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[11] A similar metathesis (in a very similar phonetic environment: * *-ro-* flanked by a coronal and labial) may have taken place in *sorbeō* 'drink, suck' < * *srob*^{h}*-eje/o-* (see under *urgeō*). Other possible instances of metathesis include *certus* 'certain' < * *kritos*, *testis* < * *tri-sth*$_{2}$*-i-* (Weiss 2009: 142), *dulcis* 'sweet' < * *dluku-*, *pulmō* 'lung' < * *plumōn* (Leumann 1977: 101). But these can alternatively be explained as due to an exceptional initial-syllable syncope, with *-er-* and *-ul-* from secondary * *-r̥-* and * *-l̥-* (Leumann 1977: 142; Sihler 1995: 69).

[12] On the status of *i*-stem adjectives as a Proto-Indo-European category compare Balles (2009) and Rau (2009: 177 fn.143). But in fact, there is a hint that *turpis* may not have been an *i*-stem originally, since the derived verb is *turpāre*, which implies a preform * *turpus*, *-a*, *-um*.

urgeō 'push, press, drive, urge' is derived by LIV (697) from **u̯r̥g-e̯i̯e/o-*, a present belonging to the root **u̯reg-* 'follow a trail' (cf. Gothic *wrikan* 'pursue'). But there are two problems with such an etymology. Firstly, the required semantic shift of 'follow a trail' → 'pursue' → 'drive' seems rather far-fetched. Secondly, that the class of *e̯i̯e/o*-presents with zero grade of the root posited by LIV actually existed in Proto-Indo-European is extremely doubtful (Yakubovich 2014: 402 fn. 30). Semantically, a causative/iterative of this root would be far better: 'cause to follow a trail' → 'push, drive, urge'. This would require an *o*-grade in the root, and a reconstruction **u̯rog-e̯i̯e/o-*, which could hardly have given *urgeō* directly, regardless of the exact rule by which we find *-ur-* for expected *-or-*. One could assume a metathesis to give **u̯org-e̯i̯e-*, which is not completely *ad hoc*, given the apparently similar development of *sorbeō* 'drink, suck' < **srob^h-e̯i̯e/o-* (cf. Gk. ῥοφεω 'gulp down'; LIV 587).[13] Alternatively, one could accept the etymological connection with the root **u̯erĝ^h-* seen in Lithuanian *veržti* 'compress, tie up, press', Old English *wyrgan* 'strangle' (LIV 688), as proposed by Schrijver (1991: 76; followed by de Vaan 2008: 644), where a causative/iterative **u̯orĝ^h-e̯i̯e/o-* 'press (repeatedly)' would work semantically.[14]

ursus 'bear' ought to go back to **h$_2$r̥tĥ-o-* (cf. Hittite *ḫartakka-*, Vedic *ṛ́ksa-*, Greek. ἄρκτος; de Vaan 2008: 645).

uruum 'curved part of a plough, ploughbeam'. The best etymology here is comparison with Ionic Greek οὖρον 'limit, range', specifically 'the breadth of land ploughed in a day' < **u̯oru̯-o-*, derived from the *u*-present **u̯er-u-* found in Greek ἐρύω 'pull, drag' (Driessen 2001: 62-4; de Vaan 2008: 645). On the basis that the *uruum* is in fact a hook-plough, Rix (1995: 89) derives *uruum* instead from **u̯r̥d-u̯o-* 'scratching', the root being **u̯erd-* 'scratch, become loose by scratching', attested in Avestan *varəduua* 'soft', dialectal Swedish *rota* 'root, dig up'. But, apart from the fact that such a root is only marginally attested at all (the entry in IEW 1163 is a sort of grab-bag of forms that are phonologically and semantically only loosely similar), the fact that the *uruum* was a hook-plough hardly rules out the idea that it comes

[13] That the root has full-grade II is shown also by Hittite *sarāpi* 'sips', Lithuanian *srebiù* 'sip', although Albanian *gjerb* 'sips' also has full-grade I.

[14] As noted by de Vaan, this etymology presupposes that **-rĝ^h-* develops to *-rg-* in Latin; good examples of **-rg^h-* and **-rĝ^h-* seem to be remarkably lacking in Latin. Katz (1998, 2006) argues for a development to *-rb-*, but this rests on several tendentious etymologies.

etymologically from a root meaning 'to drag', as suggested by Rix. Driessen (2001: 63 fn.32) provides the parallel of Old English *sulh* 'plough' from the same root as Greek ἕλκω 'drag about' (LIV 530-31). The difference in the semantics between *uruum* and οὖρον is also unproblematic; English 'plough' itself provides a parallel, being attested dialectally with the meaning 'the name given to a unit of land capable of being tilled by a team of oxen in a year' (in fact this meaning is attested earlier than the sense 'agricultural implement').[15]

As a result of the etymologies discussed above, I do not consider the following forms to be part of the evidence for the type of development of **-r̥C-* or **-orC-* to *-urC-* being examined here, either because there is another source for the presence of *-ur-*, or because the origin of *-ur-* is likely to be onomatopoeic, or because there is simply no plausible etymology for the word: *curuus* 'curved, bent', *furfur* 'bran', *gurdus* 'blockhead', *gurgēs* 'whirlpool', *lurcō* 'glutton', *murmur* 'low, continuous noise', *purpura* 'purple', *surdus* 'deaf', *turma* 'troop', *turba* 'disorder, crowd'. The following words are possible examples of the development, but are not completely certain: *murcus* 'cut off', *murcidus* 'slothful', *scurra* 'idler', *furca* 'fork'. I do take the following words to be good examples of the development: *currō* 'run', *curtus* 'mutilated', *furnus* 'oven', *furtum* 'theft', *sturnus* 'starling', *turdus* 'thrush', *turpis* 'ugly', *urbs* 'city', *urgeō* 'push', *ursus* 'bear', *uruum* 'ploughbeam'.

3. Phonological explanations

The only previous attempt, as far as I am aware, to identify a phonetic environment for the change is provided by Meiser (1998: 63-4), who proposes that a conditioning factor is the presence of **u̯-* or a labiovelar before **-r̥-*. Although he does not make it entirely explicit, Meiser seems to see this as reflecting a change of syllable nucleus, so that **u̯r̥C-* becomes **urC-*.[16] Meiser does not claim that this change affects all instances of **u̯r̥C-*, since there are several cases of **u̯r̥C-* giving *uorC-*,[17] of which the best examples are *uerrēs* 'boar' < **u̯orsē* + *-s* < **u̯r̥-sē(n)*, *uertī* 'turned' < *uortī* < **(u̯e-)u̯r̥t-* and *uersus* 'turned' < *uorsus* < **u̯r̥t-to-*, *uerrō* 'sweep' < *uorrō* < **u̯r̥s-e/o-* and *-uerrī* < *-uorrī* 'swept' from either perfect **(u̯e-)u̯r̥s-*

[15] OED.com, s.v. plough, at http://www.oed.com/view/Entry/145945?rskey=u5GFAY&result=1&isAdvanced=false#eid. Last accessed 15/07/2015.

[16] It is not clear how this works with the labiovelars.

[17] Subsequently *uor-* became *uer-* by fronting of *-o-* after *u-* and before a coronal.

or aorist *u̯r̥s-*.[18] Nor does he claim that it explains other cases of *-urC-* not preceded by **u̯-* or a labiovelar. So Meiser's formulation would provide the environment for only a sporadic sound change at best. In fact, when one looks at the data, one sees that there are very few, if any, forms to which Meiser's formulation certainly applies. Thus, leaving aside *gurgēs*, *turma*, and *turba* for the reasons already stated, we have only *curtus* 'mutilated, damaged, broken', which may come with equal likelihood from **kr̥-to-* rather than **k*^{w}*r̥-to-*; *urbs* for which any number of possible etymologies have been suggested, the best of which provides for a preform **u̯orb*^{h}*(i)-* just as well as **u̯r̥b*^{h}*(i)-*; *urgeō*, which is derived by Meiser from **u̯r̥g-eḭe/o-*, but is more likely to be from **u̯org*$^{(h)}$*-eḭe/o-*; *uruum*, which is far better etymologised as **u̯or-u̯o-* rather than **u̯r̥d-u̯o-*, as supposed by Meiser. Altogether, therefore, there is very little reason to accept Meiser's formulation. We shall, however, return to possible phonological environments for the development to *-ur-* in Section 5.

4. A dialectal change of **-orC- > -urC-*?

As already stated in Section 1, *-urC-* forms are often explained in terms of borrowing into standard Latin from some non-urban dialect. There is no direct evidence for this, as far as I am aware, in the form of inscriptional extra-urban forms showing *-u-* for standard *-o-*. However, it could be argued that apparent cases of *-e-* becoming *-i-* before *-rC-* provide a parallel for a general rule raising vowels before coda *-r-* in non-urban Latin. There is a certain amount of inscriptional evidence for this, consisting of the form STIRCVS (CIL 1^{2} 401, Luceria) for *stercus* 'dung' and a number of cases of the spelling *Mircurius* for *Mercurius* 'Mercury' in Republican inscriptions. This has been compared to an apparently similar change in Oscan, seen in **mirik[k]ịui** (Capua 31/Cm 12) 'Mercury (dat. sg.)' and **amirikum** (Cumae 9/Cm 13) 'wealth'.[19] In all these forms the environment is **-erk-*. Faliscan **loifiṛtato** (Bakkum 2009: 424, MF 31), **loifirtato** (Bakkum 2009: 424, MF 32) 'freedom (gen. sg.)', [l]**oifirtạ** 'freedwoman' (Bakkum 2009: 427, MF 41) seem to show a similar raising in the sequence **-ert-* (Bakkum 2009: 98): Faliscan may be a dialect of Latin, or may be a separate language. Outside the inscriptional evidence, there is a small number of Latin words which seem to show the raising of **-er-* to *-ir-* when followed by a range of consonants: *firmus* <

[18] Meiser already notes *uerrēs*, *uertī*, *uersus*.

[19] Sabellic inscriptions are given first the numeration of Crawford et al. (2011), followed by that of Rix (2002a), except for Umbrian forms from the Iguvine Tables (IT), which are not included in Craword's edition.

d^hermo- (de Vaan 2008: 223), *hirtus* 'hairy' < *$ĝ^h$erto-* (de Vaan 2008: 286), *stirps* 'stem, stock', perhaps from **sterp-* (de Vaan 2008: 589), *scirpus* 'bulrush', perhaps from **skerp-* (de Vaan 2008: 546). All this might add up to a non-urban dialectal rule *-erC-* > *-irC-* (thus Weiss 2009: 138), with variation between urban and non-urban versions visible in inscriptions, and with a few originally non-urban forms making it into standard Latin. This being the case, we might be inclined to propose a rule raising **-orC-* to *-urC-* in non-urban Latin, being a back-vowel parallel to the apparent rule which raises the front vowel in *-erC-* > *-irC-*; although no inscriptional evidence for this rule survives, rather more forms have crept into the standard language.

Whether *-erC-* > *-irC-* is really a dialectal sound change is open to question. It is often represented as such, perhaps as a result of influence from Oscan. Vine (1993: 169) comments on its "somewhat unclear dialectal profile", although finally concluding that it is restricted to Faliscan, Oscan, "'Campanian' Latin and possibly Sabine". But Adams (2007: 89-91) shows that we cannot establish a clear 'dialectal' status for this sound change in Latin, and sees the Oscan forms - themselves apparently sporadic - as being influenced by Latin rather than the other way round.[20] However, it is really only a matter of terminology whether one considers the development of *-erC-* to *-irC-* as originally dialectal, or instead refers to it as 'sporadic'. The point is that some words in Latin demonstrate a change of *-erC-* to *-irC-*, just as some words seem to show **-orC-* > *-urC-*.

But it is not really clear that what we have in *-erC-* > *-irC-* is in fact a straightforward (if dialectal or sporadic) raising rule. We do have further evidence for raising before *-r-* in syllable coda in the form of *quōr* > *cūr* 'why', **b^hōr* > *fūr* 'thief'. But in general, the effects of coda *-r-* on adjacent vowels do not seem to have been strong enough to be phonologised without further conditioning factors. The raising seen in *cūr* and *fūr* only affects **-ō-*, which was already higher than **-o-* (Allen 1978: 47-9), and it may also be meaningful that both examples come after an original labial.[21] The fronting of **-o-* before coda *-r-* mentioned in Section 3 only takes place when **-o-* is preceded by **-u̯-*. So, if STIRCVS, *firmus* etc. are due

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[20] Adams considers only the cases involving the environment **-erk-*, and **-erk-* is indeed the only environment for which there is inscriptional evidence in Latin. But, in the interest of minimising entities, it seems reasonable to connect the cases like *firmus* < **d^hermos*, and perhaps Faliscan **-irt-** for **-ert-** to the same source. So Adams's restriction to **-erk-* is not strong evidence against viewing the *-urC-* and the *-irC-* forms as parallel.

[21] Generally the environment for the rule is expressed as **-ō-* > *-ū-* before *-r-* in a monosyllable. But since long vowels in non-initial syllables before word-final **-r-* were being shortened at about the same time (Weiss 2009: 128), monosyllables were the only envirnment in which the sequence **-ōr#* was possible at the time of the rule.

to the influence of *-r-* on the preceding vowel, we might expect that there was some other factor which played a part in the raising (and/or fronting) seen in them.

And indeed this is the case. The two short vowels *-i-* and *-e-* were phonetically close together in the fourth to second centuries BC, leading to spellings such as HEC and AIDILES (CIL 1^2.8) for *hic* and *aidilis*, TREBIBOS (CIL 1^2.398) for *tribibus*, FALESCE (CIL 1^2.364) for *Faliscī*, DIDIT (CIL 1^2.610) for *dedit*, ALIXENTROS (CIL 1^2.533) for *Alexander* (Wachter 1987: 487-8). In hiatus, *-e-* for *-i-* seems to have been a non-urban feature (Adams 2007: 68-72, *pace* Wachter 1987: 488-9), but the other cases are neither geographically limited, nor characterised by a particular phonetic environment. It seems plausible to follow Wachter in considering cases like STIRCVS to be simply further examples of this confusion. Although in general standard Latin came consistently to distinguish between etymological **-e-* and **-i-* in spelling, some words did end up with the wrong phoneme, such as *uitulus* 'calf' < **u̯et-elo-*, *uigeō* 'flourish' < **u̯eg-e₂je/o-*, *Minerua* < **men-es-u̯eh₂*, *minor* 'threaten' < **men-eh₂-i̯e/o-*.[22] It is probably not a coincidence that in most of these cases **-e-* is followed by a coronal, whose fronting effect added to the difficulty of perceiving original **-e-*.[23] The case of *-urC-*, however, is different. As well as the strange absence of inscriptional evidence for non-standard *-urC-* forms, we have no inscriptional evidence for a closeness between *-o-* and *-u-* in Latin of the same type as between *-e-* and *-i-*, which was the additional factor which encouraged hypocorrection of **-e-* before coda *-r-*. Without such a factor, we would not expect to find raising of **-orC-* to *-urC-*. Consequently there is no reason to think that the development of *-irC-* for *-erC-* and *-urC-* for *-orC-* are parallel.

Another reason to doubt that the *-urC-* forms are really due to a change that took place in Latin rather than in some other language is the existence of *ursus* 'bear', which is very difficult to explain in a principled way if it is assumed to be an inherited Latin word. There is no doubt that this word must go back ultimately to a Proto-Indo-European form **h₂rtĥko-*, which is problematic since there is a reasonable amount of evidence that a sequence **h₂rC-* ought to have given **arC-* in Latin (Schrijver 1991: 56-8, 65-73), which will not provide

[22] Weiss (2009: 137) views **men V-* > *min V-* as a regular sound change.

[23] Apart from the Latin change *uo-* > *ue-* before a coronal, see for the fronting effects of coronals Hume (1994: 8-12, 214-26); Flemming (2002: 66-81, 2003: 348-52).

the input for the rule *-*orC*- > -*urC*-.[24] This leaves us to fall back on unsatisfactory and *ad hoc* explanations such as analogical influence from *urcāre* 'to roar', *uncāre* 'to roar' (Kortlandt 1983: 12; Schrijver 1991: 72). If *ursus* is a borrowed word, it is possible that the source language had a different treatment of *h_2rC- from Latin.

Altogether, while I do not think it can be completely ruled out that a non-urban dialect of Latin had a rule whereby *-*orC*- became -*urC*-, and that some of these words were borrowed into standard Latin, the evidence for such a hypothesis is not strong: there is no inscriptional evidence for such a non-urban sound change, the case of -*erC*- > -*irC*- does not provide evidence for a general raising rule in this environment, and there are good reasons to doubt that *ursus* has a purely Latin background. It seems to me fruitful to turn our attention to the possibility that the -*urC*- words may have been borrowed into Latin from a completely different language.

5. Possible phonological environments for -*urC*- forms

Before looking around for such a source language, however, the first step is to see whether a phonological environment for the -*urC*- development can be identified, since this will allow us to assess whether this matches the environment for cases of -*urC*- in a proposed source language. Normally, for regular sound change, rules are expected to be both regular and exceptionless. In the case of borrowed words, we cannot expect the rule to be exceptionless, since there will be many non-borrowed words showing the same environment in which the change did not occur. Nonetheless, unless the change in the source language was completely unconditioned (in this case, all instances of *-*orC*- and *-$_{\text{o}}^{\text{e}}$*rC*- going to -*urC*-), we can still see if we can define an environment which covers all the examples of the change in our data, or, alternatively, discover if there is a 'gap' in our data, i.e. in this case an environment in which -*ur*- never appears. We can then assume that the development to -*ur*- was a regular conditioned change in the source language. We must be aware that there are pitfalls to this approach: normally, when addressing data to see if we can recognise the environment for a

[24] In fact, the evidence is rather slimmer than Schrijver supposes. Both *ars* 'art, manner' < **artis* and *artus* 'limb' are likely to have had proterokinetic ablaut in Proto-Indo-European (*h_2*er-ti-*/*h_2*$_{\text{o}}^{\text{e}}$*r-te$_{\text{i}}$-, *h_2*er-tu-*/*h_2*$_{\text{o}}^{\text{e}}$*r-te$_{\text{u}}$-), so could have generalised the vowel quality of the full grade of the root (Schumacher 2000: 39-43; Irslinger 2002: 75-6, 189; Meier-Brügger 2003: 206-8). But *artus* 'strait, narrow' < *h_2*r-to-* ought to reflect a zero grade (analogy from *ars* and *artus* is not impossible, but the semantics are not very similar, and there is no productive verbal paradigm based on the root), and *altāre* 'altar', derived from **altos* 'burnt' < *h_2*l-to-,* provides the parallel development of *h_2*$_{\text{o}}^{\text{e}}$*lC- > *alC-.

regular sound change, in addition to trying to finding an environment (or environments) which economically describes the scope of the change, we have also to take into account forms in which the change did not take place, which acts as a control on our hypothesised environment. In other words, it is much easier to propose an environment for a sound change which covers all the positive examples of the change when you do not have to take account of apparent exceptions. When we try to examine borrowings to see if we can find an environment, this control is not there, and, especially given the relatively small number of examples, it may be too easy to find a conditioning environment - or more than one.

Despite these caveats, it seems to me useful to at least examine the data, and see if any conditioning environments suggest themselves. I believe that we can identify two possible contexts for unexpected cases of *-urC-*. First of all, despite the overall unconvincing nature of the sound law suggested by Meiser and discussed in Section 3, it is striking that several instances of initial *urC-* do come from roots beginning with **u̯-*. Of the three instances, there are good reasons to think that *uruum* and *urgeō* reflect **u̯orC-*, while *urbs* can go back to either **u̯orC-* or **u̯r̥C-*. Consequently, we could hazard a rule **u̯orC-* > **urC-* (presumably via **u̯urC-*) for these forms. If we look at the remaining cases, again we find that indeed *-urC-* does seem to be environmentally conditioned. Six of the best instances of *-ur-* come from **-r̥–*: *curtus* < **k^(w)r̥-to-*, *furtum* < **bʰr̥-to-*, *turdus* < **tr̥sdʰo-*, *furnus* < **gʷʰr̥-no-*, *turpis* 'foul, loathsome' < **tr̥p-i-*, *ursus* < **h₂r̥ḱ-to-*. Of the remaining plausible data, all could have included either **-r̥-* or **-or-*: *currō* < **kr̥s-e/o-* or **kors-e/o-*, *sturnus* 'starling' < **(h₂)str̥-no-* or **(h₂)stor-no-*, *furca* if from **ĝʰr̥keh₂* or **ĝʰorkeh₂*, *scurra* if from **skr̥-seh₂* or **skor-seh₂*. It looks as though the condition for the change in these words could have been simply the presence of the syllabic **-r̥-* and the absence of **-or-*.

Of course, in formulating these rules, no account has been taken of the existence of counterexamples in Latin. There is plenty of evidence for **-r̥-* giving *-or-* in Latin (e.g. *cornus* 'cornel tree, spear of cornel wood', *cornum* 'cornel berry' < **kr̥-no-*, *sors* 'lot' < **sr̥-ti-*, *porrum* 'leek' < **pr̥so-* etc.), but this is not pertinent if the words are borrowed from another language in which **-r̥-* to **-ur-* is regular.[25] At first glance, the same is true of the **u̯orC-* to *urC-* rule, since we have the cases of *uorC-* giving *uerC-* in Latin discussed above. However,

[25] Of course, if the development of **-r̥-* to *-ur-* were further conditioned in the source language, standard Latin might also contain some borrowed forms in which this change did not happen because the conditions were not met. But without some other evidence for the borrowed status of these words, we cannot tell them apart from words showing the regular Latin reflex.

all these go back ultimately to **u̯r̥C-* rather than original **u̯orC-*, so in principle we could have here a regular Latin sound rule whereby **u̯orC- > *urC-* before **u̯r̥C- > *u̯orC-*.[26] This would clearly have to be very early in the history of Latin.[27]

It might be objected that it seems perverse for the same environment in Latin, **u̯orC-*, albeit coming into being at different times, to produce such completely different reflexes as **u̯urC-* and *uerC-*. But it is not surprising in the context of a hearer-based model of sound change of the sort proposed by Ohala (2003). Syllable-coda *-r-* in Latin acts like other coronals in causing fronting of *-o-* after *-u-* in the course of the second century BC (cf. *uotō > uetō* 'forbid'; Weiss 2009: 140). But it also causes raising of the preceding vowel in *quōr > cūr* 'why', **bʰōr > fūr* 'thief'. These features probably correspond with a high second formant (F2) and low first formant (F1) frequency respectively in the production of *-r-* in a syllable coda[28].[29] Normally learners are good at correcting for the effects of adjacent

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[26] The rule apparently only applied when **u̯-* was word initial, since **su̯ord-i-* (cf. Gothic *swarts* 'black'; Nussbaum 1999: 403) gives *sordēs* 'dirt' rather than [x]*surdēs*. This analysis assumes that Latin *uerbum* 'word' goes back to **u̯erdʰo-* or **u̯r̥dʰo-* rather than **u̯ordʰo-* and that *uermis* 'worm' goes back to **u̯er-mi-* or **u̯r̥-mi-* rather than **u̯or-mi-*. An *e*-grade for *uerbum* is supported by its attestation as such in Plautus, instead of [x]*uorbum*, while a zero grade is found in e.g. Gothic *waurd* 'word', Old Prussian *wīrds* 'word' (for more on the ablaut of this word see NIL 729-30). Unfortunately, *uermis* is not attested before Lucretius. The zero grade is attested in Germanic, e.g. Old High German *wurm*, but this does not prove the same for Latin. The combination of the Germanic and Latin evidence could point towards a proterokinetic pattern with strong stem **u̯erm-i-* and weak **u̯r̥m-ei̯-*.

[27] The development of **-r̥-* to *-or-* is generally supposed to have taken place in Proto-Italic, but, as I will show in section 6, this is uncertain. An absolute terminus ante quem is provided by the existence of *urgeō* in Plautus, and VRBID is found in the late fourth century BC inscription CIL 1^2.5, but of course **-r̥- > -or-* will already have taken place much earlier.

[28] Formants are the resonances in different parts of the vocal tract which are produced when making sounds, and which can be seen on spectograms of sound waves (Ladefoged & Disner 2012: 32-61). F1 correlates inversely with vowel height (low F1: high vowel), while F2 correlates with frontness (high F2: front vowel).

[29] Note that the behaviour of *-r-* (raising, fronting) in syllable coda is different from *-r-* in syllable onset, which causes lowering of a preceding high vowel, at least in non-initial syllables (or at least blocks the normal raising caused by vowel weakening): **kines-es > *kinir-es* (rhotacism and vowel weakening) > *cineris* 'ash (gen. sg.)'. According to Parker (1988) this lowering also takes place in initial syllables, but note the problems raised by Sen (2009: 288 fn. 122). In syllable onset, *-r-* does not cause fronting of *-o-* after *-u-*: *uorō* 'devour'. These differences support the suggestion of Sen (2009: 288-92, more briefly 2015: 92 fn. 17) that *-r-* has 'dark' and 'clear' variants in Latin, which are dependent on syllable position, as for *-l-*: dark *-r-* is syllable-initial, and clear *-r-* is syllable-final.

segments on individual sounds, but in the case of **u̯orC-* sequences, there is the further possibility of spread of labiality from the preceding *-u-*, which causes problems in identifying the original vowel. In both cases of the **u̯orC-* which has arisen at different times, learners have misanalysed and hence miscorrected the original sequence. In the case of the early change, the combined effect of lip-rounding from preceding *-u-* and low F1 from following *-r-*, has led to **-o-* becoming *-u-* by hypocorrection. In the later change the fronting effect of the *-r-* has been hypocorrected, while the raising has been corrected for, resulting in *-o- > -e-*.[30]

We can conclude this section, therefore, by saying that, if any of the *-urC-* forms do have an origin in a regular Latin sound law, the only candidate for such a law is **u̯or- > *u̯ur- > *ur-*, which must have taken place prior to **-r̥- > *-or-*. The remaining forms must or can have *-ur-* from **-r̥-*; but if so, they must be borrowed, since **-r̥-* gives *-or-* in Latin.

6. Cases of *-ur-* as loan words from Umbrian

As mentioned in the Introduction, many scholars refer to a Sabellic origin of the Latin *-urC-* forms. In fact, as already noted by Leumann, it is only Umbrian which presents any promising possibilities in this direction, where we find the following forms: *curnaco* (acc. sg., IT 6a 2, 4, 15, 17), *curnase* (abl. sg., IT 6a 1) 'crow'; *furfant* (3pl. present, IT 6b 43), and, with a preverb, *efurfatu* (3sg. fut. impv., IT 6b 17, 7a 38): meaning uncertain; *purdouitu* (3sg. impv., IT 6a 56), *purdinśiust* (IT 7a 43), *purdinśus* (IT 6b 23, 37, 38), *purdinsust* (IT 6b 16, 24, all 3sg. fut. perf.), *purditom* (IT 7a 45), *purdito* (IT 6b 42), *purdita* (IT 6b 18, all past participle) 'offer'; *tursitu* (3sg. fut. impv., IT 6b 60, 7a 49), *tursituto* (3pl. fut. impv., IT 7a 51), *tursiandu* (3pl. pres. pass. subj., IT 7b 2) 'terrify', with the name of the goddess *tursa* (voc. sg., IT 6b 58, 61, 7a 47, 49), *tursar* (gen. sg., IT 7a 46), *turse* (dat. sg., IT 7a 41, 53).

Two sound laws have been proposed to explain these forms. Meiser (1986: 116) observes that "[d]as Spärliche und disparate Material läßt die Formulierung eines Lautgesetzes nicht zu", but then suggests that **-or-* before a continuant became *-ur-*, with *purdouitu*, in which the **-or-* comes before a stop, being analogical after verbs in which the prefix did come before a continuant, and *trahuorfi* 'transversely' < **trans-u̯r̥t-t-ēd*, in which *-or-* is retained before a continuant, being analogical after *couortus* '(s)he will turn back'.

[30] The restriction of fronting of *-o-* before coronals to position after *-u-* is presumably due to hypercorrection: the inherent lip-rounding of *-o-* is taken to be a property of the preceding *-u-*. So the sound change involves both hypo- and hypercorrection of features of segments adjacent to the vowel.

Untermann (1990: 297) objects to the analogies required here as *ad hoc*, and instead suggests a distinction between **-or-* > *-ur-* and **-r̥-* > *-or-* in Umbrian, the former sound change including **-or-* before a vowel, as in *furo* 'forum' < **dʰu̯oro-*. We will look at the data first with Untermann's suggestion in mind, before turning to that of Meiser.

The evidence is by no means clearly in favour of Untermann's approach. In particular, *porca* (acc. pl., IT 7a 6) 'sows', is problematic. All the comparanda support an original *o*-grade here (Avestan *parəsa-*, Lithuanian *paršas*, Old English *fearh* 'pig', Middle Irish *orc* 'young pig' < **porĥko-*; de Vaan 2008: 481), and Untermann has to suggest analogical influence from **pr̥k-eh₂*, which is found in Latin *porca* 'ridge between two furrows' (de Vaan 2008: 481), but is unattested in Umbrian. Even if the word did exist in Umbrian, the synchronic semantics of the two words do not provide much support. This form, therefore, seems to show **-or-* remaining as *-or-*. On the other hand, there is good evidence of *-ur-* going back to **-r̥-*. Untermann (1990: 297) derives the preverb *pur-* in *purdouitu* from **por*, comparing Latin *porrō* 'straight on', Greek πόρρω 'forwards'. But πόρρω is merely the Attic form of πόρσω, found in Pindar and tragedy, which itself seems to be a metathesised version of Homeric πρόσ(σ)ω (Nussbaum 1994: 173 fn.43; Dunkel 2014: 2.644), and of course *porrō* could go back to **pr̥sō* as well as **porsō* (Nussbaum 1994: 173; it is a loanword from Greek according to Dunkel 2014: 644). Indeed there is no certain comparative evidence for the existence of **por* as a preposition or preverb, while **pr̥* is found in Greek πάρ 'further, beside', Gothic *faur* 'for, before', Old English *fyrst* 'roof-ridge' < **pr̥-sth₂-i-* and Vedic *pr̥ṣṭhá-* 'back, peak < **pr̥-sth₂-o-* (Nussbaum 1994: 173 fn.43; de Vaan 2008: 481; Dunkel 2014: 2.633-5). Consequently, it seems clear that Umbrian *pur-* must go back to **pr̥-*.

Of the remaining evidence for *-ur-*, there is very little clarity about whether it goes back to **-or-* or **-r̥-*. Thus, *curnaco* belongs to a presumably originally onomatopoeic root **ker-*, and is likely to be a derivative of an original *n*-stem (cf. Greek κόραξ 'raven' < **kor-n̥-k-*, κορώνη 'crow' < **kor-ōn-eh₂*; Weiss 2010: 64). But it is difficult to know how to reconstruct the paradigm of such an *n*-stem; only the acrostatic Proto-Indo-European ablaut scheme would provide an *o*-grade in the root, which would imply nom. sg. **kor-n̥*, gen. sg.**ker-n̥-s*.[31] If Proto-Italic generalised the *o*-grade of the strong stem forms to give a stem

[31] Although *n*-stems of this 'acrostatic II' type, with *o*-grade of the root in the strong stem forms and *e*-grade in the weak ones, are rare, if not non-existent. The word for 'name' probably reflects the 'acrostatic I' pattern, with nom. sg. **h₁nēh₃-mn̥* and gen. sg. **h₁neh₃-mn̥-s* (Neri 2005) rather than 'acrostatic II' **h₁nom-n̥*, **h₁nem-n̥-s*, as supposed by Stüber (1998: 53-9). The evidence for nom. sg. **h₂ongʷ-n̥* > Latin *unguen* 'grease, oil', gen. sg.

**kor-n-*, this could be the basis from which was derived Umbrian *curnaco* (and Latin *cornix*). However, the weak stems of original acrostatic nouns often passed over into the proterokinetic paradigm, which would give gen. sg. **kr̥-n-es*, whose stem could then have been generalised as the basis for *curnaco* and *cornix*. Furthermore, κορώνη 'crow' suggests that there must also have been a word for 'crow' ending in **-ō(n)*, which could only go back to an amphikinetic paradigm with nom. sg. **ker-ō*, gen. sg. **kr̥-n-es*.[32] The two paradigms were apparently confused in Greek to give **kor-ō*, whence κορώνη < **kor-ōn-eh₂*. Similar confusion between the paradigms in Proto-Italic could have resulted in either a stem **kor-n-* or a stem **kr̥-n-*. So we cannot be sure whether *curnaco* goes back to **kornāk-* or **kr̥nāk-*.

Things are equally complex with regard to *tursitu*. This clearly is originally a causative to the root **tres-* seen in Vedic *trásati* 'tremble', Greek τρέω 'flee from fear' (LIV 650-51). But this ought to be **tros-eie/o-*, which is attested in Vedic *trāsaya* 'make tremble (impv.)' which would give Umbrian [x]*trori-*. Things are not helped by the fact that Latin has *terreō* 'terrify', which also fails to show the expected vocalism. There are various possible explanations for these forms; for Umbrian one could operate with a metathesis or analogical remodelling of **tros-* to **tors-* (as apparently in Latin *sorbeō* 'sup up, suck in' < **srobʰ-*; LIV 587; this explanation is preferred by García Castillero 2000: 369-70), or assume that the vowel in the first syllable of Umbrian *tursitu* is the result of analogical influence from the goddess *tursa*, whose name could come directly from a formation **tr̥s-eh₂*, with zero grade in the root (LIV 651).[33] Or, a third possibility, see *tursitu* as being due to a productive Proto-Italic process of creating zero-grade causatives (also LIV 651). In short, we cannot be sure whether *tursitu* comes from **tors-eie/o-* or **tr̥s-eie/o-*; the same goes for the divine name

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**h₂engʷ-n̥-s* (Stüber 1998: 59-60), depends entirely on the far-fetched idea that the root is found in forms like Greek διθύραμβος 'dithyramb' (Janda 2000: 282-7). Otherwise, one could instead reconstruct a proterokinetic paradigm with nom. sg. **h₃engʷ-n̥* > Latin *unguen* 'ointment', **h₃n̥gʷ-en-s* > Old Irish *imbe* 'butter (gen. sg.)' (with amphikinetic collective nom. sg. **h₃engʷ-ō* > Old High German *ancho* 'butter').

[32] For helpful explanation of the Proto-Indo-European ablaut patterns, see Ringe (2006: 44-50) and Clackson (2007: 79-86).

[33] LIV explains Latin *terreō* 'terrify' as due to a syncope of a vowel in the context r _ [COR], so that **tros-* becomes **tr̥s-*, which secondarily becomes **ters-*. LIV assumes that this was a Proto-Italic rule, and hence also took place in Umbrian, but *tursitu* cannot come regularly from secondary **tr̥seie/o-*, because secondary **-r̥-* has the same reflex *-er-* in Umbrian as in Latin (Meiser 1986: 71-2). Hence the necessity of analogical influence from *tursa* < **tr̥s-eh₂*; LIV's suggestion is misrepresented by de Vaan (2008: 617), who assumes a regular development of secondary **tr̥seie/o-* > Umbrian *tursitu*.

tursa, which could come from **tr̥s-eh₂*, or have undergone the same metathesis as, or been influenced by, the verb.

As for *furfant*, the meaning of this verb has been considerably debated, with several different etymologies being put forward (Untermann 2000: 302-3). Most recently, Meiser (2013) has argued for a meaning 'cut up, dismember' for *furfant* (where the object is a sheep), with *efurfatu* meaning 'cut into', where the object is a variety of ritual foodstuffs to be put into the fire: "'Er soll die Vestišia, die Mefa Spefa und die Gedärme in das Feuer hineinschneiden.' – also Kuchen und Gedärme nicht unzerkleinert im Ganzen ins Feuer geben." (Meiser 2013: 162). Meiser's argument for the meaning of *furfant* on the basis of the context of the appropriate passages of the text is plausible. I am less convinced that the preverb **en-* combined with the verb could give the meaning 'cut into (a place)'; cutting not being an action that involves moving the object, I would expect *efurfatu* to mean 'cut into' in the sense of 'make an incision' or possibly 'cut into pieces'.[34] Meiser suggests that this word should then be seen as a derived verb from a verbal-governing compound **bʰorH-dʰh₁-o-* 'making a cut; cutting up', with the root of the first element being that found in Latin *forō* 'bore, pierce' (de Vaan 2008: 236-7; LIV 80).[35] If this is correct, then *furfant* would be an example of **-or-* giving *-ur-*, because a zero grade **bʰr̥H-dʰh₁-o-* would be expected to give **frāfo-*.[36]

However, the presence of the laryngeal in such a zero grade is in fact somewhat uncertain. In the first place, the root may not have ended in a laryngeal. Forms for which the laryngeal seems to be guaranteed all have semantics along the lines of 'scold' (Lithuanian *bárti* 'scold', Sanksrit *bhr̥ṇāti* 'threaten, scold'), and doubts have been raised about whether these belong with this root (LIV 80 fn. 2). In forms which have a clearer semantic connection, the laryngeal often seems to be absent, as in Middle Irish *bern* 'gap, breach' (vs. expected *ˣbaran* < **bʰerH-neh₂*), Young Avestan *tiži.bara-* 'with sharp cutting' (without lengthening of **-o-* by Brugmann's law), Old Norse *berja* 'hit' (lack of resonant gemination in **bʰorH-e̯je-*),[37] and Albanian *brimë* 'hole' < **bʰr̥-meh₂* (**-r̥H-* gives Albanian *-ra-*; Demiraj

[34] Meiser sees *purom-e efurfatu* 'cut into the fireplace', with *purom* being governed by the postposition *e*(*n*) 'in' as being parallel with **pir ahtim-em ententu** (IT 1b 12) 'place the fire in the *ahtis*'; but here the verb is one of motion.

[35] This sort of compound is described by Hackstein (2002: 6, 13-19).

[36] In **bʰorH-dʰh₁-o-* the laryngeal would be lost in the sequence **-oRHC-* by the Saussure effect (on which see Nussbaum 1997).

[37] But there are different views on the environment in which this takes place (Zair 2012: 11-12).

1997: 51). On the other hand, Greek φάρος 'plough' < *b^hr̥H-e/os-,[38] and Old High German *borōn* 'bore' < *b^hr̥H-eh$_2$-i̯e/o- do seem to point to a laryngeal. The situation is unclear, but it seems that *b^hr̥-d^{h}h$_1$-o- is not ruled out.[39] One could also consider the possibility that a different root was involved, the *b^hres- that appears in Hittite *paršii̯a* 'breaks', Greek φάρσος 'part' (Kloekhorst 2008: 642-3); *furfant* could then come from *b^hr̥s-d^{h}h$_1$-o-.[40] Altogether, while the sense of *furfant* and its etymology remain somewhat uncertain, it does not provide strong evidence for the origin of *-ur-* in Umbrian.

Turning to cases of *-or-*, for *ortom* (acc. sg. past participle, IT 6a 46), *orto* (nom. sg. past participle, IT 6a 26, 36, 6b 29) 'arisen', the preform is *h_3r̥-to-, but this could have been remodelled to **orto-* on the basis of other parts of the paradigm, as probably in the case of Latin *ortus* beside *orior* 'arise' (Schrijver 1991: 69-70; de Vaan 2008: 434-5). The verb *portatu* (fut. impv., IT 6b 55), *portaia* (3sg. pres. subj., IT 7b 1), *portust* (3sg. fut. perf., IT7b 3) 'bring, carry' is derived by Untermann (2000: 616-17) from an intensive, ultimately going back to a past participle *pr̥-to- to the root *per- found in Vedic *píparti* 'bring across' (LIV 472-3). But it could equally be denominative to the noun found in Latin *porta*, Oscan **pṷrtam** (acc. sg., Teruentum 8/Sa 4) 'gate', which could be an original past participle *pr̥-teh$_2$ 'that which is crossed', but could also be an *o*-grade verbal noun *por-teh$_2$ (Probert 2006: 174-84; Weiss 2009: 292; cf. Latin *hortus* 'garden', Greek χόρτος 'encosure, court', Old Irish *gort* 'field' < *g^hor-to-).

The final two *-or-* forms are the most likely to go back to *-r̥-. They are *couortus* (3sg. fut. perf., IT 7a 39),[41] *couortuso* (3sg. fut. perf. pass., IT 6b 64) 'return' and *trahuorfi* (IT 7a25) 'transversely'. Both of these belong to the root *u̯ert- 'turn' seen in Latin *uertō* 'turn' (LIV 691-2). The stem of *couortus* goes back to an original perfect seen in Vedic *vā́várta* 'turns, has turned', which would originally have had *o*-grade of the root in the singular (*u̯e-u̯ort-) and zero grade in the plural (*u̯e-u̯r̥t-). In Latin, the vast majority of original perfect stems have generalised the zero grade stem, but there may be some isolated examples

[38] Although the attestation of this form is meagre (Beekes 2010: 1554-5), there does seem to be enough evidence of this word and its derivatives to confirm its existence. Note also φάραγξ 'cleft, chasm', despite Beekes (2010: 1553).

[39] For zero grades in this type of compound cf. Gothic *waurd* 'word' < *u̯r̥h$_1$-d^{h}h$_1$-o- (beside *o*-grade in Lithuanian *vardas* 'word' and *e*-grade in Latin *uerbum* 'word'), with other examples in Hackstein (2002).

[40] There is no direct evidence for the result of *-*rsf-* in Umbrian, but since *-*rss-* became *-rf-* (Meiser 1986: 172), it seems likely that it would also give *-rf-*.

[41] The alternative form *courtust* (IT 6a 6) is probably just a spelling mistake for *couortust*.

of *o*-grade remaining, so this was presumably not a process already completed in Proto-Italic (Meiser 2003: 158-62).[42] However, the Sabellic languages also seem to have generalised the zero grade (there are no clear examples of *o*-grades in the list of perfects given at Piwowarczyk 2011: 117-23), so **u̯e-u̯r̥t-* is the most plausible reconstruction, though **u̯e-u̯ort-* cannot be completely ruled out.[43] The zero grade is close to certain, however, in *trahuorfi* (IT 7a 25) 'transversely', an adverb based on the past participle of the same root **u̯r̥-to-* (Untermann 2000: 758). If *couortus* did reflect the original *o*-grade **u̯e-u̯ort-* it would be possible that the past participle had adopted the same root vocalism, giving **u̯ort-*. But as *o*-grade is anyway less likely in *couortus*, and as *trahuorfi*, as an adverb, may well no longer have been thought of as connected with the verb, zero grade is far more likely.

To sum up this part of the discussion, Untermann's argument for **-or-* > *-ur-* but **-r̥-* > *-or-* does not match the evidence particularly well. There are no certain examples of **-orC-* > *-urC-*, but one good example of **-orC-* remaining as *-orC-*: *porca* < **porḱeh₂*. As for **-r̥-*, it seems to have given *-ur-* in *pur-* < **pr̥*, but *-or-* in *couortus* < **-(u̯e-)u̯r̥t-* and *trahuorfi* < **-u̯r̥t-to-*. However, the evidence of these later two words is much less reliable than that of *pur-*: as James Clackson (p.c.) points out to me, at this point in the early first century BC, the convention whereby two consecutive letters VV were written VO was still alive in Latin epigraphy (Clackson 2011: 246); in all likelihood, it was also used when writing Umbrian in the Latin alphabet, so it is quite likely that *trahuorfi* contains the sequence [wu], which is, however, written VO. Alternatively, it is possible that we have here an actual dissimilation of **-u-* to *-o-*, after the phonetically identical [w]. Consequently, although the good evidence is slim, it does not support Untermann's view, and indeed shows precisely the opposite distribution (**-or-* remaining as *-or-*, while **-r̥-* gives *-ur-*).

The only point in favour of Untermann's proposal is his claim that **-or-* > *-ur-* also takes place before vowels. This has the neat effect of allowing Umbrian *furo* (acc. sg., IT 7a 52) 'forum' and Latin *forum* to be derived from exactly the same preform **dʰu̯or-o-*

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[42] My derivation of the *-us-* future perfect marker in Oscan and Umbrian from the *o*-grades of original reduplicated perfects assumes that the ablaut survived into Proto-Sabellic (Zair 2014), with zero grade subsequently being generalised.

[43] Note that the Umbrian form, like Latin *uortī*, does not have reduplication. Meiser (2003: 162) posits de-reduplication of roots belonging with **u̯-* in Proto-Italic. Dupraz (2009) explains *couortus* quite differently, suggesting that there was a small group of non-reduplicated, *o*-grade perfects in Proto-Italic. However, the evidence for such a group is extremely slim, and I do not regard such a formation as having yet been proved (for further discussion see McDonald & Zair 2012 [2013]: 36 fn.3).

(Untermann 2000: 305; de Vaan 2008: 237). Although both the zero-grade *d^h*ur-o-* and the *o*-grade *d^h*u̯or-o-* are in fact attested (Greek πρόθυρον 'front door', Gothic *daur* 'door' beside Lithuanian *dvãras* 'court, estate'; NIL 130-35), it is indeed more elegant for both the Umbrian and Latin forms to reflect a single Proto-Italic form. However, this is possible even without Untermann's rule, if Parker (1988; but see fn.29 above) is right that lowering of high vowels before onset *-r-* took place even in initial syllables. Then, rather than take both the Umbrian and the Latin forms as coming from *d^h*u̯or-o-*, we could take them both from *d^h*ur-o-*, which would give Umbrian *furo* directly, while in Latin *-*u-* was lowered to *-o-* before *-*r-*.

If we now turn to Meiser's rule, we see that, assuming that *-*r̥-* gives *-*or-* first, the vast majority of the evidence matches his claim that the further development to *-ur-* took place before a continuant. The only exceptions are *trahuorfi* and *pur-* in *purdouitu*. Meiser explained these pieces of counter-evidence by appeal to analogy of *trahuorfi* to *couortus*, and *pur-* generalised from other verbs in which the preverb was before a continuant, but, as discussed above, the spelling *trahuorfi* may not be reliable. Meiser's explanation therefore seems considerably better than Untermann's at explaining the fairly few pieces of Umbrian evidence. But, if it is correct, it rules out the idea that the Latin forms with unexpected *-ur-* are borrowings from Umbrian, since *curtus*, *furtum*, and *turpis* all have plosives following *-ur-*, and forms such as these remain unexplained.

If, on the other hand, we take as our hypothesis the idea that the Latin forms are borrowed from Umbrian, we can combine the Latin and Umbrian material in looking for an environment which produces the *-urC-* forms in words from both languages. And indeed we see that in fact there seems to be a common feature in the environment for the development of *-ur-*. As already shown, if we leave aside the cases of *u̯orC- > urC- involving original *-o-*, such as *uruum*, which may be a Latin sound change rather than due to borrowing, what we find is that, just as in Umbrian, there are no certain examples of original *-*or-* turning up as *-ur-*, while all the cases of *-ur-* either must or may come from original *-*r̥-*. On the basis of the combined Latin (borrowed) and Umbrian evidence, it is extremely tempting to suppose precisely the reverse of the rule proposed by Untermann, so that original *-*or-* is retained, while *-*r̥-* gives *-ur-*. The only counterevidence consists of *couortus* < *-*(u̯e-)u̯r̥t-* and *trahuorfi* < *-*u̯r̥t-to-*, where this may be the result either of avoidance of the sequence VV in spelling, or dissimilation from the directly preceding *-*u̯-*. Consequently, I suggest that

Umbrian had a rule *-r̥- > -ur-, for which the evidence is provided jointly by direct Umbrian evidence and the evidence of Umbrian loanwords into Latin.

If this is correct, sequences of *h_2r̥C- would also have given urC-, on the evidence of Latin *ursus*, unlike in Latin, where they gave arC-. The change to arC- is generally taken to be a Proto-Italic one, but the only evidence for *h_2r̥C- > arC- in the Sabellic languages appears to be Oscan **aragetúd** (abl. sg., Nola 2/Cm 7) 'money', and this could be explained either by seeing **aragetúd** as a borrowing from Latin *argentum* 'silver', or by positing a preform *$h_2$erg-n̥t-o-, for which there is a certain amount of other evidence (NIL 320-21, fn.16); it is also possible that -ar- is simply the regular result of *-r̥- in any context in Oscan, as we shall soon see.

If my rule is correct, then this raises interesting questions about the status of the reflexes of *-r̥- and *-l̥- in the Italic languages. By far the most common approach has been to see *-r̥- and *-l̥- to -or- and -ol- as a Proto-Italic change (see Meiser 1986: 37 for literature). If *-r̥- > -ur- is in fact the correct change in Umbrian, we need to investigate further in several different directions: firstly, does -l̥- also give -ul- in Umbrian; secondly, do the other Sabellic languages share the same reflex(es) of *-r̥- (and *-l̥-) as Umbrian, or do they give -or- as in Latin, or do they show different reflexes again? As far as the first question goes, there is very little evidence for *-l̥- in Umbrian at all. The only plausible candidate is *motar* (gen. sg., IT 7b 4) 'fine', Oscan *molto* (nom. sg., Bantia 1.11, 26/Lu 1), *moltam* (acc. sg., Bantia 1.2/Lu 1), *moltas* (gen. sg., Bantia 1.13, 27/Lu 1) 'fine'; possibly, although very uncertainly, also South Picene **molk**[1]**a**[**h**] (Superaequum 1/AQ 1; Untermann 2000: 482). These are the equivalent of Latin *multa* 'fine'. Although taken to come from *m̥lktā by von Planta (1892-1897: 1.314), these forms do not have a good etymology, and could in any case have an *o*-grade.

As for the reflexes of *-r̥- and *-l̥- in the other Sabellic languages, the evidence is very mixed. For -or- as the result of *-r̥- possible examples are Oscan *fortis* 'more strongly' (Bantia 1.12/Lu 1), and Paelignian *forte(s)* (gen. sg.; Corfinium 11/Pg 10) 'fortune'. On the basis that *fortis* and Old Latin *forctus*[44] → Latin *fortis* 'strong' come from an original verbal adjective *d^hr̥$ĝ^h$-to- (cf. Vedic *dṛ̥dhá-* 'fixed, firm') or *b^hr̥g^h-to- (cf. Vedic *-bṛ̥dha-* 'solid, strong'),[45] a zero grade seems plausible. But *forctus* is attested only in Festus, and its reliability is uncertain, as is its derivational relationship with *fortis* (Vine 2006: 141; Balles 2009: 4). It is possible that instead *fortis* is a member of a small group of Latin *ti*-stems which have

[44] *horctum et forctum pro bono dicebant* (Paul *Fest.*; Lindsay 1913: 91).

[45] See Katz (1998: 216 fn.95); de Vaan (2008: 236); NIL (31, 34).

unexpected *o*-grade (cf. *mōns* 'mountain' < **mon-ti-*, *fōns* 'fountain' < **dʰonh₂-ti-*, *hostis* 'stranger, foreigner' < **gʰos-ti-*;Vine 2004: 374-6), which Vine (2006: 154-6) sees as substantivisations of original *o*-stem adjectives (according to the pattern found in Latin *rauus* 'hoarse', *rauis* 'hoarseness', Greek. ἄκρος 'topmost', Latin *ocris* 'rugged mountain'). Although most examples of this pattern are nouns, Vine (2006: 155), referencing an unpublished paper by Nussbaum, sees them as prone to develop into adjectives, whence *fortis*. Even if Latin *fortis* does ultimately reflect **dʰr̥ǵʰ-to-* or **bʰr̥ǵʰ-to-*, the Oscan word may well be a borrowing from Latin (Untermann 2000: 304-5), given the suffusion of Latin borrowings and calques of legal language in the Tabula Bantina where it is found (on which see Adams 2003: 115, 137-8; Decorte 2015). An *o*-grade for *forte*(*s*), Latin *fors* 'chance', is, however, less likely, since a zero-grade **bʰr̥-ti-* is attested in Indo-Iranian, Armenian, Germanic, Lithuanian and perhaps Welsh (NIL 16-17). So *forte*(*s*) might go back to **bʰr̥-ti-* (Untermann 2000: 304). But Paelignian in the first century BC had been in contact with Latin for some while, and it is again possible that *forte*(*s*) is a borrowing from Latin (Untermann 2000: 304, also 70-71, 790), albeit with a meaning closer to Latin *fortuna*.[46]

By comparison, a very good example of **-r̥-* gives a quite different result in Oscan **[kú]mparakineís** (Pompeii 20/Po 9) 'of the assembly', *comparascuster* (Bantia 1.4/Lu 1) 'shall have been raised (of a matter)'. Both of these words are formed with the root **preḱ-* (LIV 490-91), **[kú]mparakineís** going back to **kom-pr̥ḱ-iH-n-*,[47] and the future perfect passive *comparascuster* being derived from the present stem **pr̥ḱ-sḱe/o-* (just as in Latin *poposcī* after *poscō*; the same stem is found in Vedic *pr̥ccháti* 'asks' etc.; Untermann 2000: 530-31).[48] On the basis of these forms, it looks as though the result of **-r̥-* in Oscan is *-ar-*.[49] A possible alternative explanation would be to accept that in *comparascuster* we have a special result of a sequence **-Cr̥CC-*, as suggested for Latin by Schrijver (1991: 488-98).[50] While this rule rests

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[46] For an argument that the inscription rests upon an inherited Sabellic background see Dupraz (2005). It should be noted that, following the problems raised by Clackson (2015) regarding the subgrouping of the Sabellic languages, I do not view Paelignian as necessarily being particularly closely related to Oscan. Consequently, if *forte*(*s*) were to be an inherited word going back to **bʰr̥-ti-*, this would not imply that Oscan had the same reflex of **-r̥-*.

[47] On the reconstruction of the suffix **-iH-n-* see Weiss (2009: 311-12).

[48] The original future perfect stem was **pe-pr̥k-ōs-*, as demonstrated by Umbrian **pepurkurent** (IT 5b 5-6).

[49] The eventual sequence *-ara-* is due to regular Oscan epenthesis in the sequence **-VRC-*.

[50] Schrijver actually defines the rule as **CCCC* > **CaCCC*, and includes cases like *passer* 'sparrow' < **pt-tro-* since he considers interconsonantal **-r-* to have been non-syllabic in the proto-language. A not dissimilar

on a relatively small evidence base, and seems not to have been accepted into handbooks such as Meiser (1998) and Weiss (2009), it must be admitted that alternative explanations of forms such as *nanciō* 'obtain' < **h₂n̥-n-k̂-* (LIV 282-4) rely on *ad hoc* analogical remodellings (although Latin *poscō* itself is a counter-example to such a rule, which Schrijver has to explain as a secondary zero grade). It could then be supposed that the 'root' **park-* was abstracted from the present of this verb and used to form nouns. It must be said that this seems like special pleading.

The only good example I have been able to find of **-l̥-* is Oscan **kulupu** (Cumae 8.28, 36/Cm 14), which Rix (2002b) plausibly argues to be a genitive plural, meaning 'of thieves', and to go back to **klp-* > **kolp-* > **kolop-* by regular Oscan epenthesis (for still the best discussion of which see von Planta 1892-1897: 1.251-71). Since the unreformed alphabet, in which this inscription is written, did not distinguish between /o/ and /u/, both being written **<u>**, the development of **-l̥-* in Oscan could, on the basis of this form, be to **-ol-*, as in Latin, or to *-ul-*, as perhaps in Umbrian, if the development there is parallel to **-r̥-* > *-ur-*.

Altogether, the evidence for Oscan seems too meagre for us to be sure of the correct result of **-r̥-* and **-l̥-* (and this goes even more for the other Sabellic languages other than Umbrian). The best example of **-r̥-* appears as *-ar-*, and it is tempting to see this as the regular result of **-r̥-*, since this avoids having to generalise Schrijver's already doubtful rule **CCCC-* > **CaCC-* from Latin to Oscan. But **-l̥-* seems to give either *-ol-* or *-ul-*, and **-r̥-* and **-l̥-* usually develop in similar fashion in the Indo-European languages. For the time being we must remain in uncertainty. Nonetheless, the idea that the Sabellic languages may have differed from Latin in the prop vowel which developed from **-r̥-* and **-l̥-*, and hence that this process took place at a post-Proto-Italic stage, is by no means surprising: this is exactly what happened to **-n̥-* and **-m̥-*, which show different results in Latin and the Sabellic languages. In Latin, the result is always *-en-* or *-em-* (e.g. *tentus* 'stretched' < **tn̥-to-*, *decem* 'ten' < **dek̂m̥*), while in Sabellic the result of **-n̥-* and **-m̥-* is *-an-* or *-am-* in initial syllables (e.g. Oscan **fang<v>am** Cumae 9/Cm 13 'tongue' < **dʰn̥gu̯eh₂*, Umbrian *an-* < **n̥-*

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approach is that of Vine (1999b), who argues for the existence of epenthetic vowels in Indo-European languages in sequences of the type (C)RCC, where an ablauting paradigm leads to the retention of the full grade root structure in originally zero grade formations. Thus, **pr̥k̂-ske/o-* would be replaced by **prk̂-ske/o-*, on the analogy of full grade formations elsewhere in the paradigm, and develop an epenthetic vowel to give **prak-ske/o-*. However, Vine's fomulation would not work for *comparascuster*, since **kom-prak-ske/o-* would not be expected to develop into **kom-parak-ske/o-* by epenthesis (**-CRV-* sequences do not become *-CVRV-* when preceded by a heavy syllable; von Planta 1892-1897: 1.260-68).

in *anhostatu* IT 60 'unarmed') and *-en-* or *-em-* in non-initial syllables (e.g. Oscan **degetasis** Nola 2/Cm 7 'to do with tithes' < **dekm̥-t-āsi̯o-*, Umbrian *iuuengar* IT 7b 2 'heifers' < **i̯uu̯n̥keh₂-*) (Meiser 1986: 34-35; Weiss 2009: 95). As already suggested above, the proposed development of **-r̥-* to *-ur-* in Umbrian would be greatly helped if it could be shown that the initial vowel of Oscan **aragetúd** was not a special result of **h₂r̥C-*. If the Sabellic languages are assumed to have shared the development of **Hr̥C-* to **arC-* found in Latin, which is then to be seen as a Proto-Italic change, *ursus* cannot be explained as regular in any Italic language, and its initial vowel must be explained away in an *ad hoc* fashion. If *ar-* in **aragetúd** is simply the regular result of **r̥C-* < **Hr̥C-* in Oscan and the development of **Hr̥C-* to *arC-* is a purely Latin one,[51] this allows *ursus* to be borrowed from Umbrian, where it is also regular from **r̥so-* < **h₂r̥tk̂o-*.[52]

Apart from the question of the reflexes of the syllabic liquids, other aspects of the phonology of the Latin words showing *-ur-* are worth brief discussion. These suggest that the borrowing of these words from Umbrian took place relatively early. Thus, we find **-rs-* > *-rr-* in *currō*, a sound change which did not take place in Umbrian (Meiser 1986: 172-3), and which probably took place early in Latin: **kr̥s-e/o-* must have been borrowed from Umbrian as **kurs-e/o-*. There is also the development of **-rsdʰ-* to *-rd-* in *turdus*. In general, word-medial **-dʰ-* gave *-d-* in Latin, but after *-r-* it gave *-b-* (cf. *uerbum* 'word' < **u̯erdʰo-*), so we can date the loss of **-s-* to after the change of **-dʰ-* > **-đ-* > **-β-* > *-b-* after *-r-*.[53] This word raises an additional problem about the phonlogy of Umbrian at the time of the borrowing. In Umbrian, as in the other Sabellic languages, **-dʰ-* in most environments fell together with

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[51] Or if **aragetúd** comes from **h₂erg-n̥t-o-*, or is borrowed from Latin *argentum*.

[52] The preservation of the laryngeal through Proto-Italic into Proto-Latin goes against the intuition that well-behaved laryngeals ought to have been lost as early as possible in proto-languages. This could be dealt with in several ways. One is simply to accept that the evidence points to late preservation; thus, for example, Schrijver (1991: 58-64, 72-73), who sees the apparent colouring by laryngeals in instances of **HNC-* (e.g. **h₃n̥bʰ-* > *umbilicus* 'navel') as being the result of an intermediate stage **HeNC-*, with the purely Latin sound change **-N̥-* > **-eN-* taking place prior to loss of laryngeals. Or one might assume that Proto-Italic did not exist, thus allowing the Sabellic and Latin-Faliscan branches to lose both laryngeals and syllabic sonorants as early as possible. One could also imagine a third possibility: that absolute word-initial **R̥-* gave *aR-* in Latin (and Faliscan), and the fact that all our examples seem to have a laryngeal before them is mere coincidence. Such a rule has been suggested for Proto-Celtic (Ringe 1988: 429-33), but the divergent development could be due to the initial laryngeal there too (Zair 2012: 29-38).

[53] In Latin, as in Umbrian, it is often supposed that **-sdʰ-* gave *-st-*, but the evidence is uncertain (Stuart-Smith 2004: 42-3, 104, 211-12). If such a change is correct, *turdus* shows that it was prevented in the sequence **-rsdʰ-*.

*-b^h-, to give /f/, phonetically [β] or [v], written <**f**>, <f> (on these changes see Stuart-Smith 2004). However, *turdus* must have been borrowed as **tursđ-*, since otherwise we would probably expect **tursv-* to give Latin [x]*turbus*. It is possible that Umbrian **tursv-* was simply misheard as **tursđ-* in the process of borrowing into Latin, since **-rsv-* was probably a sequence which did not exist in Latin, and *-v- was preceded by two coronal consonants. But it is also possible that *-đ- had not yet fallen together with *-v- in Umbrian. It has been argued that, after a nasal, *-b^h- and *-d^h- give -b- and -d- respectively, a development which must have taken place in Umbrian and which would involve an intermediate stage *-đ- and *-v- rather than direct post-nasal de-aspiration of *-b^h- and *-d^h- in Proto-Sabellic, since original *-mb- and *-nd- gave -mm- and -nn- respectively in Umbrian (Stuart-Smith 2004: 112-13, 211). If this is correct, it might well be that *-đ- < *-d^h- and *-v- < *-b^h- were still distinct in other environments too. As noted by Stuart-Smith and further discussed by Kümmel (2012-2013 [2014]), the actual evidence for the development after nasals is very slim, so it does not strongly support the existence of both *-đ- and *-v- in Proto-Umbrian, but this cannot be ruled out.[54] An Umbrian origin of the words in -ur- also helps to clear up the etymology of *curtus*. Since *k^w- became *p*- in Proto-Sabellic (Meiser 1986: 79-92), prior to the purely Umbrian development of -ur- from *-$r̥$-, *curtus* must come from *$kr̥$-to-, not *$k^w r̥$-to-.

7. Conclusions

I have examined possible explanations for Latin words like *currō*, with -ur- in place of expected -or-, in order to make clearer the various possibilities mentioned in a vague way by the handbooks. Both of the most likely explanations involve borrowing, either from a non-urban dialect of Latin, or from Umbrian. I have argued that the first possibility is less likely, since the apparent case of raising of -erC- to -irC- cannot be used as a parallel for -orC- to -urC-: unlike -irC- forms, -urC- forms are not found inscriptionally, and the development to -irC- is dependent on a particularly similar production of /i/ and /e/ in Republican Latin which did not apply to /o/ and /u/. Furthermore, *ursus* probably cannot be explained as a

[54] Contrary to Kümmel, I think that the evidence still supports a development of at least *-mb^h- > *-mv- > *-mb-, on the basis of *combifiatu* (IT 6a 17) 'notify' < **kom-$b^h id^h$-i̯ā-tōd* (also attested in other parts of the verb paradigm). Kümmel (2012-2013 [2014]: 36, 41) argues that as the verb is a compound, *b*- at the start of the verb root was restored after *-mb^h- > *-mb- > *-mm- had taken place. But I cannot understand what it could be restored on the basis of, since in simplex forms initial *b^h- would give *f*-, not *b*-. In the absence of good evidence for *-nd^h-, however, we cannot be sure whether it developed to *-nđ- or *-nv-.

regular result of *$h_2rt\hat{k}o$- even in dialectal Latin.The forms in which *-ur-* is found can be split into two groups. In one group, *urC-* comes from *$u̯orC$- (*uruum* < *$u̯oru̯o$-, *urgeō* < *$u̯org$-e-je/o- or *$u̯org^{h}$-e-je/o-). This may be a regular sound law of Latin. In the other group, *-ur-* seems to have come from *-$r̥$-. This is not the regular result of *-$r̥$- in Latin, which usually gives *-or-*, so it is likely to be due to borrowing. Such a development may be paralleled in Umbrian, where there is a small amount of evidence for *-$r̥$- giving *-ur-*. Combining the evidence from Umbrian and Latin, we can identify an Umbrian rule whereby *-$r̥$- gave *-ur-*. If this is correct, Latin and Umbrian had different reflexes of *-$r̥$-, whose development cannot have taken place in Proto-Italic, as previously thought. Oscan may have had yet another reflex, with *-$r̥$- giving *-ar-*, although this is uncertain. Furthermore, since Latin *ursus* 'bear' is now best explained as a borrowing from Umbrian, it looks as though Latin and Umbrian also had different reflexes of the sequence *$HL̥$- at the start of a word, which gave *aL-* in Latin, but *uL-* in Umbrian.

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